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E1G G65 G67

(56) Documents Cited
GB 2231904 A GB 2069574 A
'Beany Block'-combined kerb and drainage system brochure, Marshalls Mono Ltd., Halifax. Feb.1990

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(71) Applicant(s)
CAMAS UK Limited

(Incorporated in the United Kingdom)

De La Bere House, Bayshill Road, CHELTENHAM, Glos, GL50 3AW, United Kingdom

(72) Inventor(s)
Timothy John Blower
Kevin Greaves
Christopher Anthony Pritchard

(74) Agent and/or Address for Service
Swindell & Pearson
48 Friar Gate, DERBY, DE1 1GY, United Kingdom

(54) Kerb drainage block

(57) A kerb drainage block 10 has a base 12 and a cover 14 defining a longitudinal channel in the block. At each end of the cover 14, passages 24, 28 communicate between the channel and a kerb front face 26, the passage 28 opening upwardly into the passage 24. When a pair of blocks 10 are laid end-to-end in abutting relationship, an uppermost porous layer of a roadway is laid up to the lower edge of the aligned passages 24 whereby the latter open above ground level, the passages 28 being aligned with the porous layer. Water passing through the latter can therefore find an outlet into the drainage blocks 10 through the passages 28, whilst surface water can drain directly into the blocks through the passages 24.

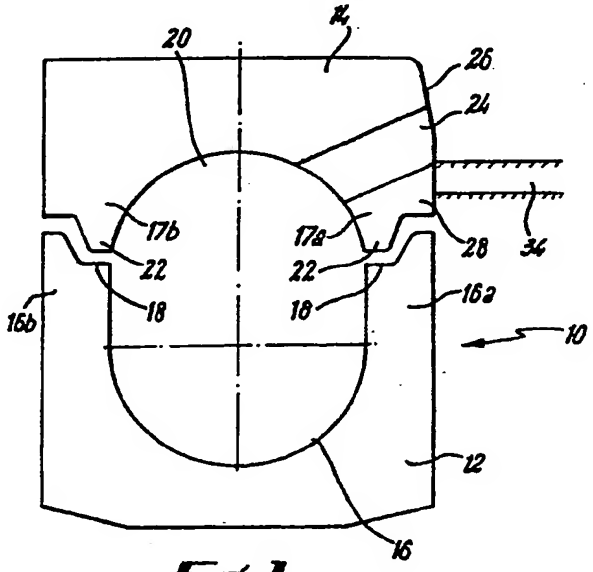

FIG.1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

The print reflects an assignment of the application under the provisions of Section 30 of the Patents Act 1977.

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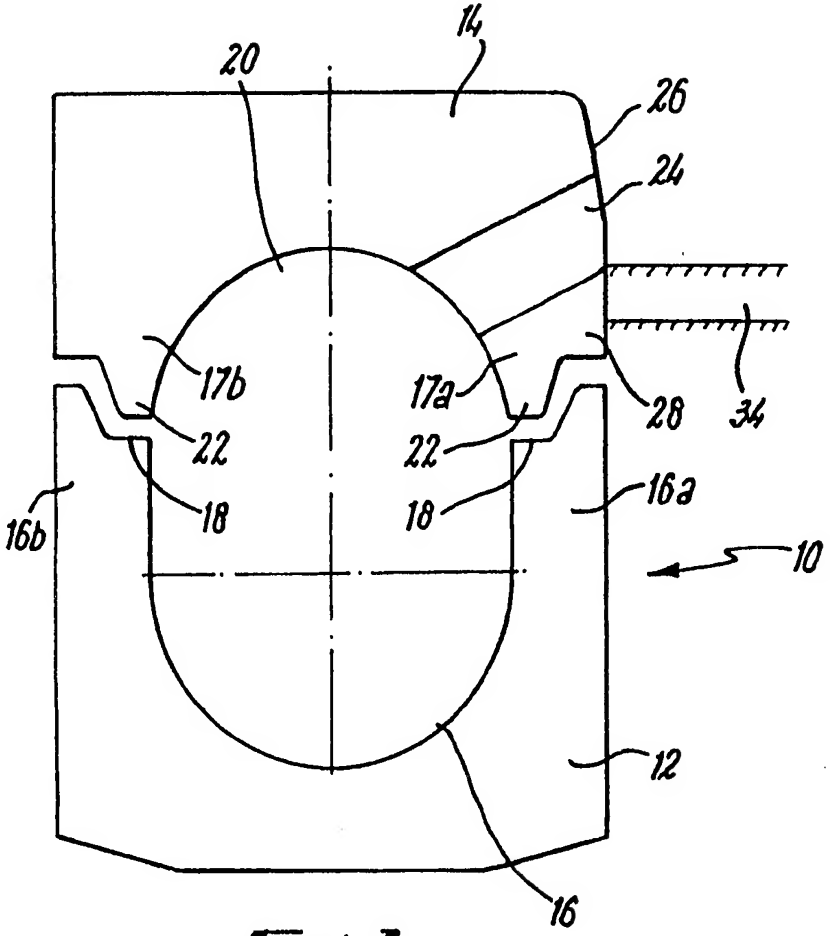

FIG. 1

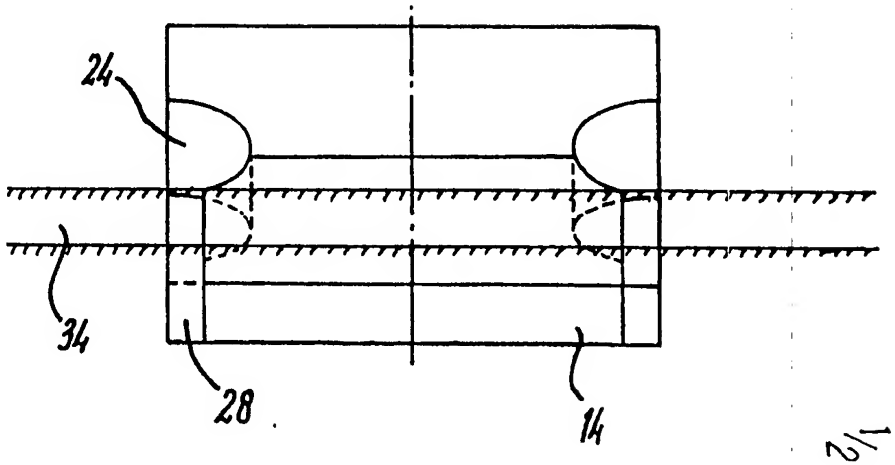

FIG. 2

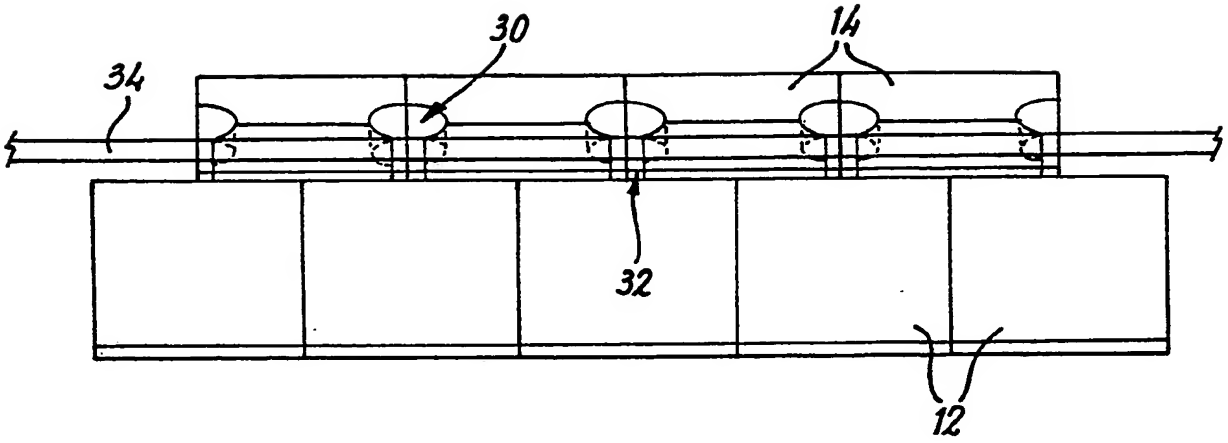

FIG.3

Drainage Systems

This invention relates to drainage systems, and apparatus and components therefor, and is particularly concerned with kerb drainage blocks to be used in association with roadways or other surfaces which have surface layers of a porous material such as asphalt.

According to the present invention there is provided a drainage component providing a closure for a base part, the component having at least one first passage arranged, in use, to provide communication between a channel in the base part and above ground level, and at least one second passage so positioned as to provide communication, in use, between the channel and a porous material layer which defines ground level.

According to the present invention there is also provided drainage apparatus comprising a base part having a drainage channel therein and arranged to be located in use in ground with the channel below ground level, and an upper part providing a closure for the base part, the upper part having at least one first passage arranged, in use, to provide communication between the channel and above ground level, and at least one second passage so positioned as to provide

communication, in use, between the channel and a porous material layer which defines ground level.

Preferably the upper part has two of the first passages, each opening onto a respective end of the upper part. The upper part may also have two of the second passages, each opening onto a respective end thereof. The second passages may each open upwardly into a respective one of the first passages.

The or each first passage is preferably upwardly angled from internally to externally.

The base and upper parts are preferably formed separately, with the upper part having a lower end profile adapted to seat on an upper end of the base part. The or each second passage in the upper part may open onto the lower end of the upper part. The base and upper parts may each be formed of a moulded cementitious material such as polymer concrete.

The invention further provides a drainage system comprising a plurality of the drainage apparatus as described in any of the four preceding paragraphs laid in an end-to-end relationship, whereby the respective first and second passages opening onto respective ends of the upper parts are aligned to form embounded through

passages.

Preferably each of the upper parts are laid across abutting ends of respective base parts.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings, in which:-

Fig. 1 is a side view of a kerb drainage block;

Fig. 2 is a front view of an upper part of the drainage block of Fig. 1; and

Fig. 3 is a front view of part of a drainage system utilising the drainage block of Figs. 1 and 2.

Referring to the drawings, a kerb drainage block 10 is formed of two parts or components, a lower part or base 12 and an upper part or cover 14, relative to the orientation in use. The base 12 is substantially U-shaped, thereby presenting an upwardly open channel 16 extending longitudinally through the base 12. Each channel leg 16a, 16b is profiled at its upper edge to provide an internal shoulder 18.

The cover 14 is of subtantially inverted U-shape defining a shallower channel 20 extending longitudinally therethrough and having the same width at its opening as the channel 16 of the base 12. Each of the channel legs

17a, 17b of the cover 14 has a profile at its lower end complementary to the profile of the respective channel leg of the base 10, whereby to provide a projection 22 for seating on the respective shoulder 18 by way of a layer of mortar (not shown).

The base 12 and the cover 14 are each preferably formed from a moulded cementitious material, such as polymer concrete, and a plurality of the blocks 10 are laid end-to-end to form a kerbside road surface drainage system as hereinafter described.

The cover part 14 is formed in each end of the channel leg 17a, the front leg in use with a first recess defining a passage 24 opening onto the respective end and communicating between the internal channel 20 and a kerb front face 26. The passage 24 is upwardly angled from internally to externally of the cover 14, and has a semi-oval cross-section as shown in Fig. 2.

The cover 14 also has material removed from each end of the front channel leg 17a between the lower end thereof and the respective passage 24 to a predetermined depth, whereby to effectively define a passage 28 opening onto the respective end and communicating between the internal channel 20 and the kerb front face 24. The passage 28 has a depth less than that of the

passage 24 and opens upwardly into the latter.

In use, a plurality of the bases 12 are laid end-to-end along a roadside in abutting relationship as shown in Fig. 3, and are securely embedded in the ground by any conventional method, whereby the channels 16 are aligned to form a continuous drainage channel below the intended road level. A plurality of the covers 14 are then seated on the bases 12 in an end-to-end abutting relationship as shown in Fig. 3, with the channel legs 17a facing the roadway, and secured to the bases 12 by mortar. As shown in Fig. 3, the covers 14 are longitudinally off-set in relation to the bases 12.

When each pair of covers 14 are laid in an abutting relationship, the passages 24 in the respective ends align with one another to effectively define an embounded through passage 30 of substantially oval cross-section. The respective end passages 28 also are aligned to effectively form an embounded through passage 32 of rectangular cross-section.

When a roadway is formed with an uppermost porous layer 34, for example of asphalt, the latter is laid up to the lower edge of the through passages 30, whereby the latter open above ground level and the through passages 32 are aligned with the porous layer 34. In this

way, surface water on the roadway can drain directly off the top surface thereof through the passages 30 into the drainage blocks 10, and by way of the drainage channel 16 therein to a remote location. Also, water passing through the porous layer 34 finds an outlet through the passages 32 and into the drainage blocks 10. Due to the off-set arrangement, water in the passages 32 does not tend to seep between adjacent bases 12.

There is thus provided a simple yet effective way of providing drainage for a roadway or other surface which can make use of the advantages inherent in having a porous surface layer. The provision of the passages in the ends of each cover 14 simplifies production and therefore is cost effective.

It should be appreciated however that the drainage passages may be formed other than in the ends of the cover 14. For example, each cover 14 may have only one pair of apertures 24, 28 formed therein, intermediate the ends thereof. Also it will be appreciated that the drainage apertures may be of other configurations, as may be the profiles of the base 12 and the cover 14 themselves.

Various other modifications may be made without departing from the invention.

Whilst endeavouring in the foregoing Specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims:-

1. A drainage component providing a closure for a base part, the component having at least one first passage arranged, in use, to provide communication between a channel in the base part and above ground level, and at least one second passage so positioned as to provide communication, in use, between the channel and a porous material layer which defines ground level.

2. A component according to Claim 1, including two of the first passages, each opening onto a respective end of the component.

3. A component according to Claim 1 or 2, including two of the second passages, each opening onto a respective end of the component.

4. A component according to Claim 3, when dependent on Claim 2, wherein the second passages each open upwardly into a respective one of the first passages.

5. A component according to any of the preceding Claims, wherein the or each first passage is upwardly angled from internally to externally.

6. A component according to any of the preceding Claims, wherein the or each second passage opens onto the lower end of the component.

7. Drainage apparatus comprising a base part having a drainage channel therein and arranged to be located in use in ground with the channel below ground level and a drainage component according to any of the preceding Claims.

8. Apparatus according to Claim 7, wherein the comprising a base part having a drainage channel therein and arranged to be located in use in ground with the channel below ground level.

9. Apparatus according to Claim 7 or 8, wherein the base and the component are each formed of a moulded cementitious material.

10. Apparatus according Claim 9, wherein the moulded cementitious material is polymer concrete.

11. A drainage system comprising a plurality of the drainage apparatus according to any of Claims 7 to 10 laid in an end-to-end relationship, whereby the respective first and second passages opening onto respective ends of the drainage components are aligned

to form embounded through passages.

12. A system according to Claim 11, wherein each of the components is laid across abutting ends of respective base parts.

13. A drainage component substantially as hereinbefore described with reference to the accompanying drawings.

14. Drainage apparatus substantially as hereinbefore described with reference to the accompanying drawings.

15. A drainage system substantially as hereinbefore described with reference to the accompanying drawings.

16. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as any of the preceding Claims.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 (The Search report)	Application number GB 9408794.7
Relevant Technical Fields (i) UK Cl (Ed.M) E1G (G65 AND G67) (ii) Int Cl (Ed.5) E01C 11/22	Search Examiner D HAWORTH Date of completion of Search 21 DECEMBER 1994
Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii)	Documents considered relevant following a search in respect of Claims :- 1-15

Categories of documents

X:	Document indicating lack of novelty or of inventive step.	**P:**	Document published on or after the declared priority date but before the filing date of the present application.
Y:	Document indicating lack of inventive step if combined with one or more other documents of the same category.	**E:**	Patent document published on or after, but with priority date earlier than, the filing date of the present application.
A:	Document indicating technological background and/or state of the art.	**&:**	Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2069574 A (W YORKS C C)	1-15
A	GB 2231904 A (ECC)	
X	'Beany Block' - combined kerb and drainage system brochure, Marshalls Mono Ltd Southowram, Halifax February 1990	1-15

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).